

PLUS REQUEST FORM

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The title, abstract, background and brief summary are scanned. Scanning claims has been shown to provide less useful results, therefore claims are not normally scanned.

Key words to emphasize (optional): hourglass
flexible disc cap marker exercise

Key words: The system **cannot search phrases**, only words. To search words with fewer than 2 or more than 50 characters, or any words with numbers in them, please list them as key words.

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invention will become more apparent from a reading of the following detailed description when taken in conjunction with the accompanying drawings.

Brief Description of the Drawings

FIG. 1 is a perspective view of an exercise apparatus that incorporates an embodiment of the present invention.

FIG. 2 is a side view of an anchor in accordance with an embodiment of the present invention separate from the exercise apparatus shown in FIG. 1.

Detailed Description of the Invention

One type of exercise apparatus, which utilizes an embodiment of the present invention described hereinafter, is shown in FIG. 1. The Pilates combo chair 100 may have single or split steps 102. The split steps 102 may easily be converted into a single step by inserting a dowel (not shown), horizontally through a bore 108 through each of the two aligned split steps 102. The dowel connects the split steps together forming a single step. As shown in FIG. 1, each step is at the free end of a pivot arm 104. The other end of the pivot arm 104 is connected to the base of the box shaped frame structure 106 the combo chair 100 by a self-lubricating bearing for smooth operation and rotation of the arm 104. The step 102 is padded and covered with a rubberized or other type of non-slip material that minimize accidental foot slippage by increasing the surface friction between the step and a user's foot that rests on the step 102. One or more springs 110 each have one end 112 connected to the pivot arm 104 via an anchor 120. The other end 114 of the spring 110 is fastened to a sidewall of the frame structure 106 via another anchor 120 in accordance with the present invention.

A user performs various exercises by placing one or two feet on the footrests and undergoing a series of stepping movements. The springs 110 provide a level of resistance that may be varied by changing the number of springs and/or the spring attachment location to one of the anchors 120 to which the spring or springs are attached. For example, the combo chair 100 shown in FIG. 1 has five spring attachment anchors in accordance with the present invention for each step 102. There are three anchors on the sidewall of the frame 106 of the combo chair 100 and two on the step pivot arm 104 near the step 102.

DEVICE FOR ATTACHING AN ELASTIC MEMBER
TO EXERCISE APPARATUS

Abstract of the Disclosure

A spring anchor for a spring biased exercise device has an hourglass shaped solid body adapted to receive one closed loop end of a coil spring therearound. The solid body has a central axial bore therethrough, a maximum outer diameter and a waist having a diameter less than the outer diameter. A flexible disc is fastened transversely to a top portion of the body. The disc has an outer diameter greater than the outer diameter of the solid body so that it extends beyond the outer diameter of the body. A cap member fastens the flexible disc between the top of the solid body and a cap portion of the cap member. The cap member in turn fastens the anchor to a flat surface of the exercise device. The spring anchor outer diameter is sized to fit within a closed loop at one end of the coil spring. The flexible disc is sized larger than the closed loop, so that the flexible disc must elastically deform to permit the eye to pass over the disc and onto the spring anchor. The flexible disc prevents inadvertent slippage of the closed loop of the spring off of the anchor.

**DEVICE FOR ATTACHING AN ELASTIC MEMBER
TO EXERCISE APPARATUS**

Background of the Invention

Field of the Invention

This invention generally relates to resistance based exercise equipment and more particularly to a spring anchor for a spring biased resistance exercise devices such as a Pilates combo chair.

Description of Related Art

Today, many types of exercise equipment are available and used for fitness and/or medical reasons to burn off undesired calories, to improve cardiovascular ability, to tone or strengthen muscles, or to improve flexibility, balance, posture, etc. No matter what the desired end goal of a user of exercise equipment may be, almost all types of exercise equipment aid the user to achieve his or her desired goal by creating some form of adequate and effective resistance against repeated bodily movements of the user.

A hook is often used to connect each of the two ends of the spring (or generally a force resisting mechanism) to a fixed location on the exercise equipment. However, a hook may easily become unattached from the exercise equipment if the spring to which the hook is connected becomes relaxed. Thus, there is a need for a device that securely connects a force resisting mechanism to an appropriate location of exercise equipment and that allows the force resisting mechanism to remain securely connected in place as the tension and stress of the force resisting mechanism is varied or modulated.

A Pilates Wunda or Combo chair is one such exercise device that is basically a box structure that has one open side out of which one or two spring biased pivot arms protrude. The box structure is designed to rest on a horizontal surface such as a floor. Each of the pivot arms has one end fastened to an inside wall of the box. The free end of the pivot arm has a foot step/support pad mounted thereon. A user typically stands on the floor and steps or presses downward on the step pad at the free end of the pivot arm with his or her foot or hand to rotate the arm downward against tension provided by one or more coil springs attached between an

anchor point on the arm and an anchor point inside the box in order to perform various exercise movements.

One end of each coil spring is attached to one of the pivot arms typically via a hook. The other end of each coil spring typically has a hook that must be inserted into the eye of an eyebolt fastened to the inside or the inner sidewall of the combo chair structure. The user must physically bend down, look under the top of the chair to align and engage the hook into the eyebolt. This action is awkward and inconvenient for the user as it is often difficult to attach the spring without visually watching connection as it is being made.

Summary of the Invention

Against this backdrop the present invention has been designed. A preferred embodiment of the present invention is a spring anchor adapted to be fastened to a surface of an exercise apparatus such as a Pilates combo chair. In the combo chair application, the anchor in accordance with the present invention may be mounted on the pivot arm and also mounted to the inner sidewall of the box frame structure.

The anchor basically is an hourglass shaped solid body adapted to receive one end of a coil spring therearound. The solid body has a central axial bore therethrough, a maximum outer diameter, and a waist having a diameter less than the outer diameter. A flexible disc is fastened to a top portion of the body. This disc has an outer diameter greater than the outer diameter of the solid body so that the outer edge of the disc extends beyond the solid body. A threaded cap member passes through the flexible disc and through the solid body fastening the flexible disc between the top of the solid body and a cap portion of the cap member. The threaded cap member then threads into the surface of the exercise device. The spring anchor outer diameter is sized to fit within an eye at the one end of the coil spring and the flexible disc is sized larger than the eye, so that the flexible disc elastically deflects and deforms to permit the eye to pass over the disc and onto the spring anchor.

After a spring is fastened to the anchor, the flexible disc prevents inadvertent slippage of the eye of the spring off of the anchor. The spring can easily be removed from the anchor by releasing the tension on the spring and forcing the eye over the flexible disc and off the anchor body. The flexible disc acts as a retainer or guard on the anchor to prevent inadvertent dislodging of the spring from the anchor. These and other features, advantages and objects of the